

Index to Volume 67

INDEX TO AUTHORS OF MAJOR ARTICLES

ALLSOP, T. Science in Society—a local development study	223
ASHMAN, A. Chemistry in schools—past, present and future. Part II	277
AYRES, D. Meeting the special needs of visually handicapped students in ecology	18
BELL, B. Students' thinking and the learning of science: a constructivist view	443
BLACK, P. J. Presidential address: Integrated or coordinated science?	669
BREWSTER, J. Towards science profiles	231
CHAN, K. M. Home-made equipment for the teaching of electrochemistry at A-level. Part III	285
CLARKE, S. Revolutions in science curricula in Scotland	241
DRIVER, R. Students' thinking and the learning of science: a constructivist view	443
ELLSE, M. Electronic instrumentation in A-level physics	495
FREEMAN, J. From radio to X-rays—some 'real' electrical applications	469
GIBSON, M. T. The teaching of ethics within school science	270
HART-DAVIS, A. Scientific Eye. The making of a science-based television series and educational package	682
HINTON, R. A. L. Meeting the special needs of visually handicapped students in ecology	18
HODSON, D. Towards science profiles	231
HUGHES, D. E. Some mathematics and physics of ball games	27
HUGHES, T. D. What happens when arthropods ecdyse	262
HUSSEY, D. Department of Industry grant boost primary science and technology on the Isle of Wight	13
IDDON, B. On the art of demonstrating experiments in chemistry	704
KEMPTON, T. Science in Society—a local development study	223
KINCHIN, I. M. Mural ecology: an interesting alternative or a useful adjunct	480
LEWIS, J. I. Ionic radius: its development and use in the teaching of inorganic chemistry	501
MARSHALL, R. Keeping warm, clean and fed: national and domestic energy budgets	716
MOYNIHAN, E. P. The paradox of senescence: mathematical and biological theories of death and ageing	462
NELLIST, J. Editorial	435
NEWTON, D. P. Humanized science teaching: What is it?	457
PARKER-JENKINS, M. Improving school lighting for video display units	44
PARKER-JENKINS, W. Improving school lighting for video display units	44
PLEVEY, R. F.—The French connection	488
POOLE, M. W. Science education and the interplay between science and religion	252
RAMSEY, N. Inner Space: physics at short distances	51
ROLLS, I. F. Quality and the education and training of future teachers of science	5
SLEIGH, J. F.—The French connection	488
SOLOMON, J. H. Motivation for learning science	437
THOMPSON, A. C. Wildlife gardening	692
WADDLING, R. E. L. Ionic radius: its development and use in the teaching of inorganic chemistry	501
WOMACK, S. J. Pollution in an historical context	476

SUBJECT INDEX

* Major article

- A.C., use of light-emitting diodes to show the nature of 370
 A-level grades, comparability of 623
 Activity and the date of discovery of elements 166
 Aeroplane's wing, the working of an 563
 Age distribution, the stable 306
 Alcohol-in-glass thermometer, making an 775
 Algorithmic keys 304
 Alkali metals, isolation of 167
 Alkaline-earth metals, isolation of 167
 Aluminium, anodic oxidation of 530
 Amount of substance, the concept of 401
 Analogue port, the BBC 584
 Analogue signals, sensing 371
 Anodic oxidation of aluminium 530
 Apparatus, identification of a piece of glass 626
 Aquatic plants and chemical buffering 301
 Artefacts, discovering reactive 747
 Arthropods, ecdysis in* 262
 Assessing planning, a strategy for 622
 Assessment in science 145
 Atmospheric pressure, using your pupils to measure 369
 Audible electric currents 375
- BBC analogue port 584
 BBC microcomputer, a photosensor and the 770
 BBC microcomputer, Maxwell-Boltzmann distribution for the 105
 Ball games, mathematics and physics of* 27
 Bernoulli principle 563
 Bike, 'On your bike'—measurements on a braking cyclist 362
 Biology, A- and S-level reading list, Part XVII 321
 Biology, A- and S-level reading list, Part XVIII 725
 Bridge rectification, demonstration 589
 Buffering, aquatic plants and chemical 301
 Buggy, a program for the BBC 109
 Bunsen burner, efficiency of a 581
 Burette, a robotic 533
- CAL, computer-aided learning 784
 Calculations and formulae in chemistry 87
 Cell, a simple oral 403
 Cellulose, decomposition in soil 733
- Centre of gravity, using your pupils to find the 569
 Charles' Law demonstration using a computer 562
 Charles' Law, method for the demonstration of 125
 Chemistry, art of demonstrating experiments in* 704
 Chemistry in schools, Part II* 277
 Chlorine, photo-activation reaction between hydrogen and 767
 Cohesion theory of water movement in plants 166
 Colour, a project for primary and middle schools 368
 Commutative, chemical reactions 557
 Comparability of A-level grades 623
 Competition for science and technology in a middle school 164
 Complexes of transition metals with pentan-2,4-dione 332
 Complexing of a substituted phosphine to nickel (II) 532
 Computer-aided learning 784
 Computer control of a continuous chemical reaction 337
 Computer, *Daphnia* respiration rates and the BBC 731
 Computer, monitoring movement in *Mimosa pudica* using the BBC 77
 Computer printers in science teaching 387
 Computer program for use with a Charles' Law demonstration 562
 Computer simulation of hydrogen atom spectrum 345
 Computer simulation of radioactive decay 566
 Computer simulations in science education 139
 Computer simulations to demonstrate the reliability of quadrat measures 66
 Computer, use to work out fitness scores 314
 Computers, power conditioning for 570
 Conductivity, verbal definition of 400
 Constructivist view of students' thinking and the learning of science* 443
 Control of a continuous chemical reaction by computer 337
 Coordination compounds with copper (II) 331
 Copper (II) coordination compounds of 2-aminobenzoate and 2-hydroxybenzoate ions 331
 Crystal planes in a sodium chloride unit cube 89

- | | | | |
|--|----------|--|-----|
| Curriculum development model in an LEA | 624 | Engineering education | 614 |
| Cuttings, apparatus for propagating | 74 | Enzymes, digestion of starch | 753 |
| <i>Daphnia</i> respiration rates using the BBC microcomputer | 731 | Equilibrium constant, determination by an electrical method | 766 |
| Data, using a microcomputer for aquisition of | 355 | Equivalence point on titration curves | 545 |
| Deadnettle in geotropic experiments, use of white | 739 | Ethics, teaching within school science* | 270 |
| Demonstration experiments in chemistry* | 704 | Ethnic minority groups, teaching science to | 607 |
| 2,4-dichlorophenoxyethanoic acid, use to demonstrate translocation in plants | 511 | Facts and theories | 818 |
| Dichotomous key | 520 | Fat content of milk, measurement of | 730 |
| Digestion of starch | 738 | Fitness scores, using a computer to work out | 314 |
| Discovery of the metals | 168 | Fluorine, F—The French connection* | 488 |
| Dissociation, determination of K_a | 335 | Food chain in a sweet jar | 743 |
| Dissolved gas in water | 101 | Formulae and calculations in chemistry | 87 |
| Ecdysis in arthropods* | 262 | Franck-Hertz experiment and the BBC micro | 133 |
| Ecology, food chain in a sweet jar | 743 | Friedel-Crafts reactions | 753 |
| Ecology, mural* | 480 | Fringe science | 401 |
| Ecology with visually handicapped students* | 18 | GCSE science, the case for | 803 |
| Ecosystem, energy flow through a marine | 513 | Games, mathematics and physics of ball* | 27 |
| Editorial* | 435 | Gardening, wildlife* | 692 |
| Education for the 16-19 age group, provision of science, Part I | 155 | Gases, dissolved in water | 627 |
| Education for the 16-19 age group, provision of science, Part II | 380 | General studies course, science module for a sixth-form | 151 |
| Education for the 16-19 age group, provision of science, Part III | 596 | Geotropic experiments, use of the white deadnettle in | 739 |
| Electric currents, audible | 375 | Germination, light and seed | 744 |
| Electrical method for determining the equilibrium constant | 766 | Gifted child, program for integrating science/mathematics with language arts | 808 |
| Electrical power | 823 | Grant for primary science and technology from the Department of Industry* | 13 |
| Electrocardiogram, an easy-to-build | 780 | Graph-plotting program for use with a Charles' Law demonstration | 562 |
| Electrochemistry, home-made equipment for the teaching of | 285, 762 | Haemoglobin, structural changes caused by oxygen binding | 71 |
| Electrodes, simple ion-selective | 341 | Handicapped, ecology with the visually* | 18 |
| Electrolytic decomposition of water | 170 | Harmonics in a square wave | 578 |
| Electromagnetic radiation from radio to X-rays* | 469 | Heartbeat, effects of synaptic transmitter substances of locust | 70 |
| Electronics, from Legg to | 564 | Helicopters, thoughts on using model | 373 |
| Electrostatics—electronic penguins and conjuring tricks | 592 | Hexagonally close-packed spheres, unit cell of | 343 |
| Electrostatics, a teaching problem | 113 | Hexamminenickel (II) bromide | 95 |
| Elements, activity and date of discovery of | 166 | Holmes—a remarkable scientist | 162 |
| Energetics of ionic lattice formation | 96 | Humanized science teaching* | 457 |
| Energy budgets, national and domestic* | 716 | Hydrogen bond, teaching the | 547 |
| Energy education in the curricula | 812 | | |
| Energy flow through a marine ecosystem | 513 | | |
| Energy, introduction to | 797 | | |

- Infra-red spectroscopy and protein structure, Part I 535
- Infra-red spectroscopy and the hydrogen bond 547
- Inner Space: physics at short distances* 51
- Inorganic chemistry, ionic radius in the teaching of* 501
- Insect populations, modification to a sweep net for sampling 309
- Instrumentation in A-level physics* 495
- Interfacing the BBC micro to the Franck-Hertz experiment 133
- Invergor reservoir project 328
- Ionic lattice formation, energetics of 96
- Ionic radius in the teaching of inorganic chemistry* 501
- Ion-selective electrodes 341
- Iron(III) ions with sulphur oxoanions, aqueous chemistry of 768
- Junior school, criticising the experiment in 142
- K_p determination of 335
- Key, teaching the use a dichotomous 520
- Learning of science, constructivist view of students' thinking and the* 443
- Lift, the working of an aeroplane's wing 563
- Light and seed germination 744
- Light-emitting diodes to show the nature of a.c. 370
- Light gate for timing experiments 590
- Lighting for video display units, improving school* 44
- Locust heartbeat, effects of synaptic transmitter substances on 70
- Logistic equation, another look at 81
- Lorentz transformations, special relativity: a derivation of the 356, 822
- Lung structure, ideas for teaching 741
- Magnesium, discovery and extraction of 167, 168
- Magnetic field around a wire, measurement of 579
- Mains, fuses, power supplies and the 122
- Maximum-power theorem, non-calculus proof of 402
- Maxwell-Boltzmann distribution for the BBC microcomputer 105
- Maylett Cup science and technology competition 617
- Mechanical resonance, demonstration of 113
- Mechanism of the electrolytic decomposition of water 170
- Metals, discovery of the 168
- Microbial activity and contamination in milk samples 313
- Microcomputer simulation of the hydrogen atom spectrum 345
- Microcomputer, titration curves using the BBC 91
- Microcomputer, use for acquisition of data 355
- Microcomputers in chemistry: Raoult's Law 553
- Microcomputers in physics teaching 376
- Microelectronics, Review of Projects in Microelectronics 628
- Milk, measurement of the fat content of 730
- Milk, measurement of the total solids content of 735
- Milk samples, microbial activity and contamination in 313
- Mimosa pudica*, use of the BBC computer to monitor movement in 77
- Molar conductivity, verbal definition of 400
- Mole, how it should be taught 171
- Mothballs, a fresh look at dancing 360
- Motivation for learning science* 437
- Multiple-choice pupils misunderstanding of concepts in 759
- Mural ecology* 480
- Net for sampling insect populations, a sweep 309
- Newton's Third Law, demonstration of 793
- Nickel, complexing of a substituted phosphane to 532
- Nuffield A-level Biology 821
- Nuffield 11 to 13 science scheme 392
- Obituary: Miss P. M. Taylor (1898-1985) 160
- Oxygen binding, structural changes in haemoglobin caused by 71
- Oxidation of aluminium 530
- Onion epidermal cells, solute potential of 525
- pH indicator properties of plant pigments 85
- Peanuts, dancing 627
- Pentan-2,4-dione, transition metal complexes with 332
- Periodic table model, rotating 3-D 560
- Pesticide, A poem of 824
- Phase changes in a steel wire 128
- Phosphine to nickel (II), complexing of a substituted 532

- Photoactivation reaction between hydrogen and chlorine 767
- Photodecomposition of "ammonium vanadyl oxalate" 86
- Photosensor and the BBC microcomputer 770
- Photosynthesis, apparatus for measuring the rate of 80
- Physics, relevance and understanding 143
- Physics, electronic instrumentation in A-level* 495
- Physics of road safety 115
- Physics of rockclimbing 349
- Piaget and curriculum analysis 800
- Pigments, pH indicator properties of plant 85
- Planning, an effective strategy for assessing 622
- Pollution in an historical context* 476
- Pollution, use of leaf yeasts to monitor atmospheric 'Porous pot' experiment 627
- Power conditioning for computers 570
- Power supplies, fuses and the mains 122
- Primary science and technology, Department of Industry grant for* 13
- Primary science, thinking and writing in 602
- Printers in science teaching, use of computer 387
- Profiles, towards science* 231
- Propagating cuttings, apparatus for 74
- Proteins and related structures, Part I 535
- Pseudoscience 169
- Pulleys, an introduction to 379
- Quadrat measures of frequency, percentage cover and density 66
- Quanta on the BBC microcomputer, shuffling 364
- Quartz-halogen lamps 595
- Radio to X-rays, from* 469
- Radioactive decay, computer simulation of 566
- Rainbow, how to make a 120
- Raoult's Law and microcomputers 553
- Rate of reaction, effect of surface area on 104
- Rate of reaction, use of analogy in teaching 171
- Ray diagrams, novel approach to accurate 130
- Reactions, commutative chemical 557
- Reading list for A- and S-level Biology, Part XVII 321
- Reading list for A- and S-level Biology, Part XVIII 725
- Rectification, demonstration of bridge 589
- Red box, Rutherford's 373
- Relativity, Lorentz transformations and special 356
- Religion and science 168, 621
- Religion, interplay between science and* 252
- Repeating reaction, a 330
- Reservoir Project, Invergrog 328
- Resonance, demonstrating mechanical 113
- Respiration rates in *Daphnia* using the BBC microcomputer 731
- Review of *Projects in Microelectronics* 628
- Road safety, the physics of 115
- Robotic burette 533
- Rockclimbing, physics in action 349
- Roulette patterns 579
- Rutherford's red box 373
- Salting-out, dissolved gas in water—demonstration by 101
- Science and religion 168, 621
- Science education and the interplay between science and religion* 252
- Science education for the 16-19 age group, Part I 155
- Science education for the 16-19 age group, Part II 380
- Science education for the 16-19 age group, Part III 596
- Science in Society—a local development study* 223
- Science, motivation for learning* 437
- Science, relevance and understanding 621
- Scientific Eye*, a television series* 682
- Scotland, science curricula in* 241
- Scope* 820
- Senescence, theories of death and ageing* 462
- Signals, sensing analogue 371
- Simulations in science education, computer 139
- Size and weight with juniors 593
- Society, a local development study of science in* 223
- Sodium chloride unit cube, crystal planes in a 89
- Solids content of milk, measurement of 735
- Solute potential of onion epidermal cells 525
- Sound, approaching science through 591
- Special relativity: a derivation of the Lorentz transformations 356

- | | | | |
|---|-----|---|-----|
| Spectacles, free | 594 | Transition metal complexes with pentan-2,4-dione | 332 |
| Spectrum, microcomputer simulation of the hydrogen atom | 345 | Translocation in plants | 511 |
| Stability constant of the tetraiodoargentate ion | 543 | Transpiration meter, a "balance" | 519 |
| Static electricity detector, the versorium | 375 | Transpiration stream in a cut shoot | 309 |
| Steel wire, phase changes in a | 128 | Triac, experiments with | 590 |
| Stomata I. Measuring stomatal opening | 74 | Twopenny whistle | 582 |
| Stomata II. The mechanism of stomatal opening | 298 | Understanding and relevance in science | 621 |
| Sublimation, demonstrating | 560 | Unit cell of hexagonally close-packed spheres | 343 |
| Substance, concept of the amount of | 401 | Versorium, a static electricity detector | 375 |
| Sulphur oxoanions, aqueous chemistry of iron (III) ions with | 768 | Video camera, use of a | 795 |
| Taylor, Miss P. M. (1898-1985) | 160 | Video display units, improving school lighting for* | 44 |
| Teachers of science, education and training of* | 5 | Video for the teaching of science | 398 |
| Technology competition | 617 | Viscous forces | 776 |
| Television series: <i>Scientific Eye</i> * | 682 | Visually handicapped students and ecology* | 18 |
| Theatre, the chemical | 619 | Water, electrolytic decomposition of | 170 |
| Theories, facts and | 818 | Water movement in plants | 166 |
| Thermometer, an alcohol-in-glass | 775 | Weighing small things | 402 |
| Thoron generators in school labs | 132 | Weight and size with juniors | 593 |
| Ticker timer, an alternative to the | 361 | Whistle, the twopenny | 582 |
| Tickertape timer, an alternative to | 376 | Wildlife gardening* | 692 |
| Timing experiments, a light gate for | 590 | Wire, the magnetic field around | 579 |
| Titration curves, equivalence point | 545 | Workcards, choosing, making and using | 799 |
| Titration curves using the BBC microcomputer | 91 | X-rays, from radio to | 469 |
| Titration experiment and the stability constant of the tetraiodoargentate ion | 543 | Yeasts, uses to monitor atmospheric pollution | 524 |
| Training of future teachers of science* | 5 | | |

